



# 2013 STRATEGIC DIRECTION & PERFORMANCE MEASURES

UTAH DEPARTMENT OF TRANSPORTATION  
[www.udot.utah.gov](http://www.udot.utah.gov)

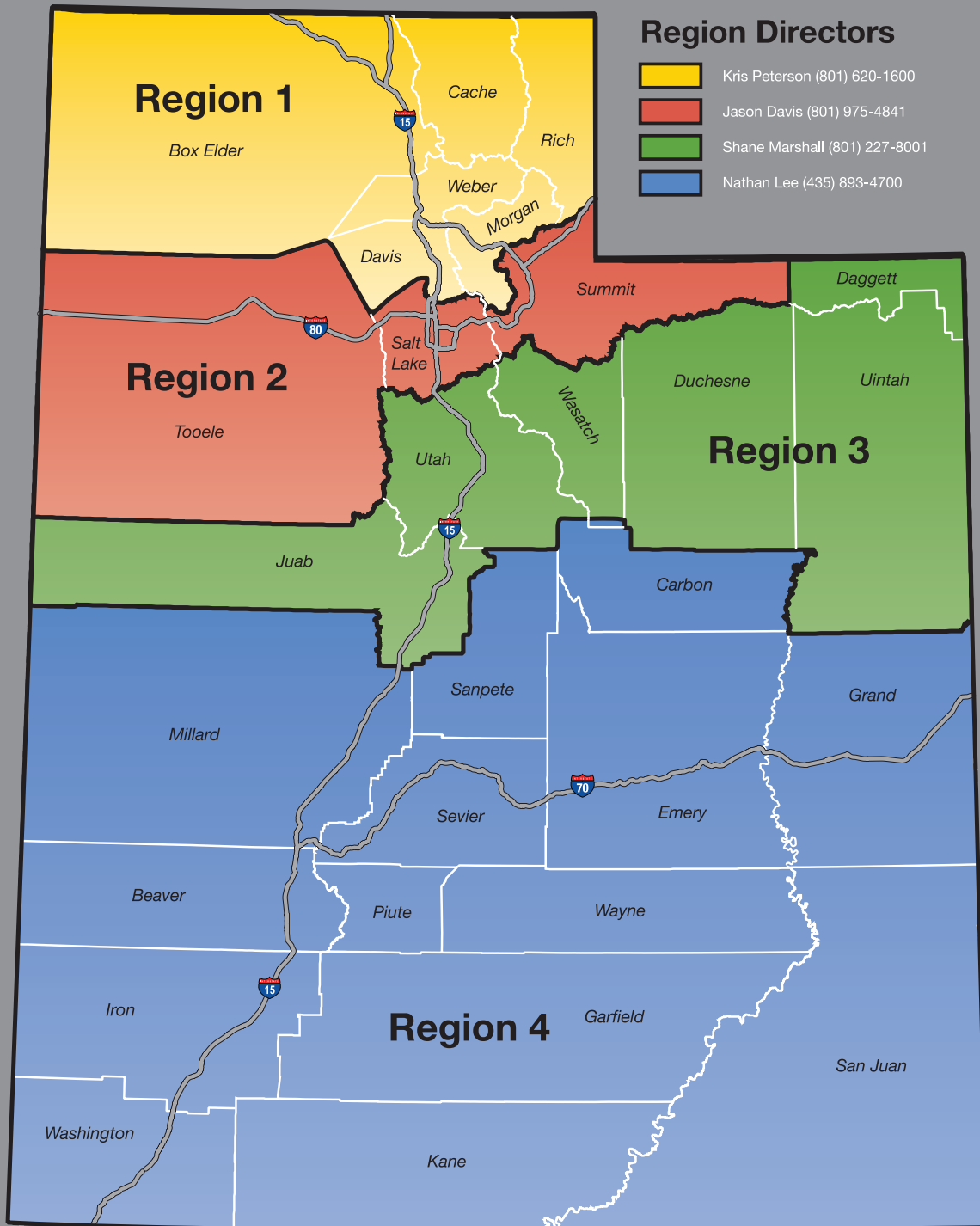
*Mountain View Corridor*



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# UDOT REGIONS



# UTAH DEPARTMENT OF TRANSPORTATION



## The 2013 Strategic Direction: Measuring Progress and Planning for Utah's Future

This past year has been a record breaking one for UDOT. More than 200 projects reached completion last year, projects with a net worth of just over \$3 billion.

- 2.3 million tons of asphalt — enough to pave a two lane road with a two inch overlay from Salt Lake City to Washington D.C.
- 6.8 million pounds of reinforcing steel or enough to build 3,800 cars.
- 1.3 million yards of concrete, enough concrete to build 14 NFL stadiums.

During the month of September UDOT had 230 active projects in Utah employing nearly 16,000 non-government employees. Our business model leverages the experience and expertise of our state workers, in combination with the knowledge, skills, abilities and resources of the private sector enabling us to complete an amazing number of projects last year.

Yet there is more to be done. As long as people work, study, play and live in this great place we call home, there will be the need to preserve and improve Utah's transportation system. Our challenge remains. Utah continues to be one of the fastest growing states in America. With that growth, vehicle miles traveled (VMT) grows faster than population and our ability to address this growth by adding mileage has been only barely visible in comparison. As long as these trends continue, we will be challenged in our work and will need to reinvent new innovative solutions to continue to be successful.

In order to chart consistent, measurable progress, we have focused on four goals over the past nine years. They have served us well and ensured that we focus our efforts and capital on the most important activities. This year we have revised our goals and improved upon a past goal. These goals are:

- Preserve Infrastructure
- Optimize Mobility
- Zero Fatalities
- Strengthen the Economy

We will continue to be keenly focused on preserving our infrastructure, this multi-billion dollar investment must be cared for and its condition must be maintained for the generations that come after us. We know how to do this and will continue to pinch every penny while finding ways to maintain our assets. Aside from our occasional mega-project, preserving our infrastructure is the single largest expenditure year to year within UDOT, which makes our roads safer.



The goal of optimizing mobility continues to include the need to build new highways, expand existing highways, build more bicycle and pedestrian paths and expand the transit network. There are, however, opportunities to fine tune the assets we already have and enhance traffic flow, without necessarily expanding the existing system. I continue to believe that optimization will create relief from oppressive congestion. However, we will continue to look for locations appropriate for more lanes where necessary and additional capacity, albeit in more surgical applications.

You will notice that our third goal is the same, yet worded differently. Our goal last year of “improving safety” is really completely enveloped within our already established and well known goal of reducing fatalities to zero. Some may believe that zero is unattainable, however to those who’ve lost family members on Utah roads one fatality is one too many. Zero Fatalities is the only goal acceptable to Utahns and to UDOT.

Last year we introduced a new strategic goal, strengthen the economy. I have become even more convinced this year that this goal is fundamental to UDOT’s work. If you consider the history of the development of highways and transportation systems in our great country, this goal of strengthening the local, state or national economy has always been part of the foundation. It is fundamental. UDOT’s function as an organization should result in businesses that flourish, providing jobs and opportunities. Utah and the Utah Department of Transportation have a history of innovation and invention. The first ever traffic signal was invented in Utah. Other innovations include the first major Design-Build highway project in America, single point urban interchanges, continuous flow interchanges, diverging diamond interchanges, self-propelled modular transport of bridges, overnight bridge slides, express toll lanes, commuter lanes, reversible lanes, zero fatalities, snow fighting technologies, cable barrier, rumble strips, Construction Management General Contractor (CMGC), Price+Time contracting, and the list goes on.

UDOT has completed two of the largest projects in our history using only state funds and delivered the largest construction season in our history.

Our significant challenge remains. However, I believe the future is bright for transportation as we focus on our four strategic goals.

Thank you,  
  
John Njord  
Executive Director  
801-965-4113

# THE UTAH TRANSPORTATION COMMISSION

## MEETING UTAH'S TRANSPORTATION NEEDS

The Utah Transportation Commission works in partnership with UDOT to provide a quality transportation system for all of Utah.

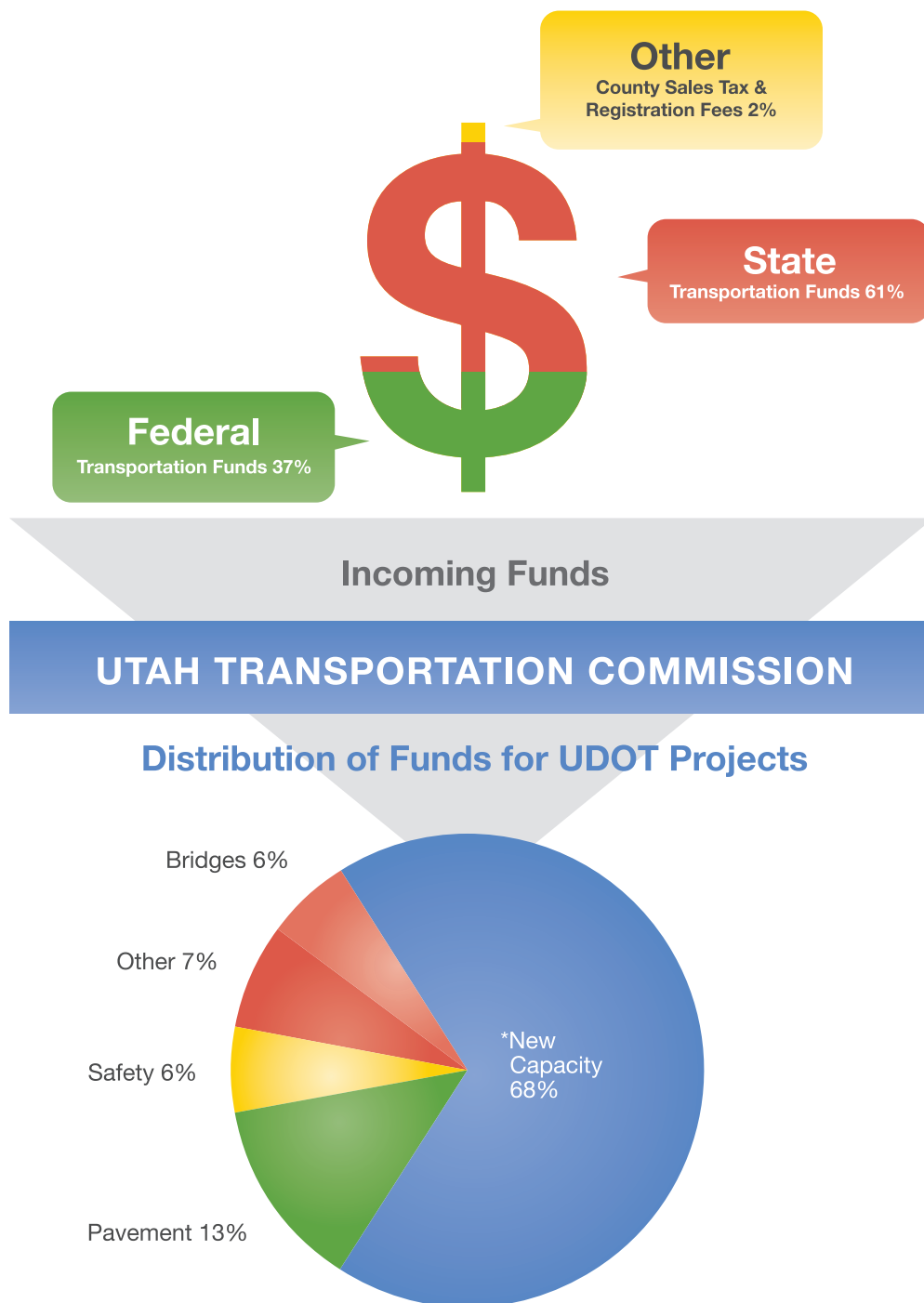
The Commission is comprised of seven members. Their roles and responsibilities, as defined in Utah Code 72-1-303, include:

- Determine priorities and funding levels of projects in the state transportation system considering a prioritization of needs provided by the Department.
- Determine additions and deletions to the state highway system.
- Take public comment about transportation matters at scheduled Commission meetings.
- Make policies and rules under the Rulemaking Act, §63-46a, necessary to perform the Commission's duties.
- Approve establishment of tollways for new state highways or new capacity lanes under §72-6-118.
- Advise the Department on state transportation systems policy.
- Review administrative rules made, amended or repealed by the Department.
- Annually review public transit plans. In addition, one commissioner serves as a non-voting member of the Board of Trustees for the Utah Transit Authority.

To find more information about the commissioners, visit [udot.utah.gov/go/commission](http://udot.utah.gov/go/commission). Each commissioner may be contacted directly or through the Commission Secretary.

## AVAILABLE TRANSPORTATION FUNDING 2013

UDOT operates its programs from a combination of federal, state and local funds. Amounts and percentages change from year to year.



\*Includes roads, safety and bridges



# THE CHALLENGE

## MEETING UTAH'S TRANSPORTATION NEEDS

The demands on Utah's transportation system continue to be substantial. Population growth and higher vehicle miles traveled have created demand for increased capacity. Increased system use has also put a strain on scarce resources to preserve and extend the life of roads and bridges.

Expanding and preserving our system will require improved efficiency, careful use of resources and close partnering with decision makers.

### Growth Also Creates Opportunity

Investing in transportation helps meet today's needs and builds a solid foundation for continued economic expansion and success. By building a strong and capable transportation system, UDOT can help facilitate, enable and stimulate economic prosperity.

### Population Growth vs. Lane Miles

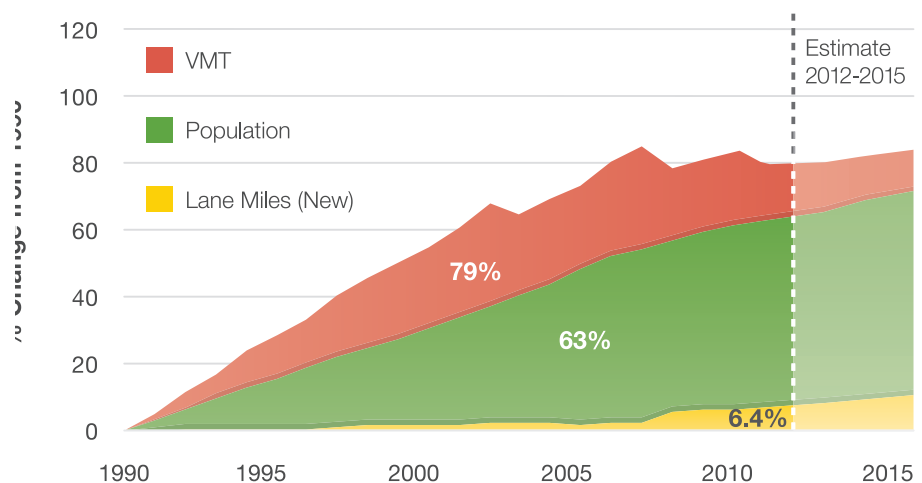
Between 1990 and 2012, Utah's population increased by 63 percent and the number of vehicle miles traveled (VMT\*) increased by 79 percent but capacity increased by six percent.

Projections show that by 2015, travel will increase by 85 to 90 percent, population by 70 to 80 percent and new capacity by seven percent. By 2050 more than five million people will call Utah home, making it one of the fastest growing states in the country.

\*VMT is a measure of the total number of vehicle miles traveled on a specific road segment over a given period of time. In this document, UDOT is using systemwide numbers calculated yearly.

## UTAH STATEWIDE GROWTH TRENDS

*VMT and population growth exceed increased transportation capacity, measured in new lane miles added to the system. Projections show growth will continue.*



Increased VMT gives rise to:

**Traffic Delay:** Utahns along the Wasatch Front experience 100,000 hours of systemwide delay per day. Improvements planned through 2030 will help maintain mobility.

**Increased Wear and Tear:** UDOT maintains nearly 6,000 centerline miles of roadways across the state, an investment worth tens of billions of dollars. In order to protect that investment, the transportation system must be kept in good condition.

**Vehicle-Related Crashes:** With increased traffic and vehicles, UDOT is working diligently on solutions to bring fatal crashes to zero.



*UDOT opened all lanes on I-15 CORE on November 5, 2012*

## UDOT Can Meet The Challenge

Finding ways to meet transportation needs while keeping our current system in good condition requires resourcefulness and innovative thinking. The state has more than \$16 billion in unmet highway needs already identified through 2040. UDOT recognizes that every transportation need cannot be funded with projected revenue sources.

### Strategic Goals:

- Preserve Infrastructure
- Optimize Mobility
- Zero Fatalities
- Strengthen the Economy



*Crews add texture to the roadway surface.*

## Strategic Goal

# PRESERVE INFRASTRUCTURE

UDOT is preserving Utah's existing transportation infrastructure. The state's multi-billion dollar investment in roads, bridges and other assets must be maintained for future generations.

Keeping Utah's bridges and pavement in good condition is the most effective way to extend the life of the transportation system. UDOT maintains a multi-billion dollar system by:

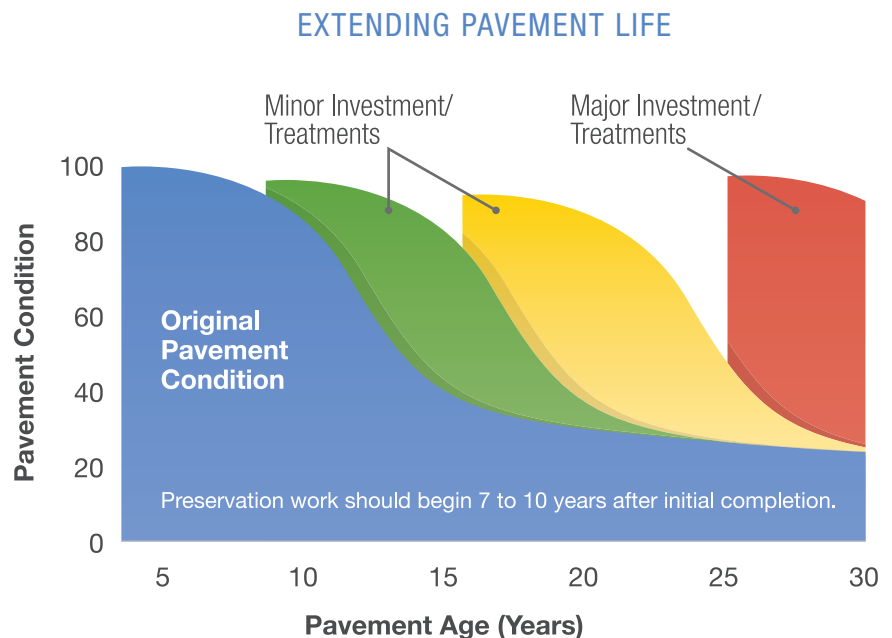
- Applying well-timed preservation treatments
- Addressing critical needs first

### Good Roads Cost Less

The most effective way to preserve the transportation system is to continue a regular schedule of upkeep to prevent deterioration.

Preserving our infrastructure includes actions such as:

- Sealing bridge decks, maintaining joints and bearings and painting steel girders.
- Repairing cracks and potholes and resurfacing asphalt or concrete pavement.
- Repairing or replacing drainage systems.



*Once deterioration occurs, taxpayers will shoulder a much higher cost to repair or rebuild pavement and bridges.*

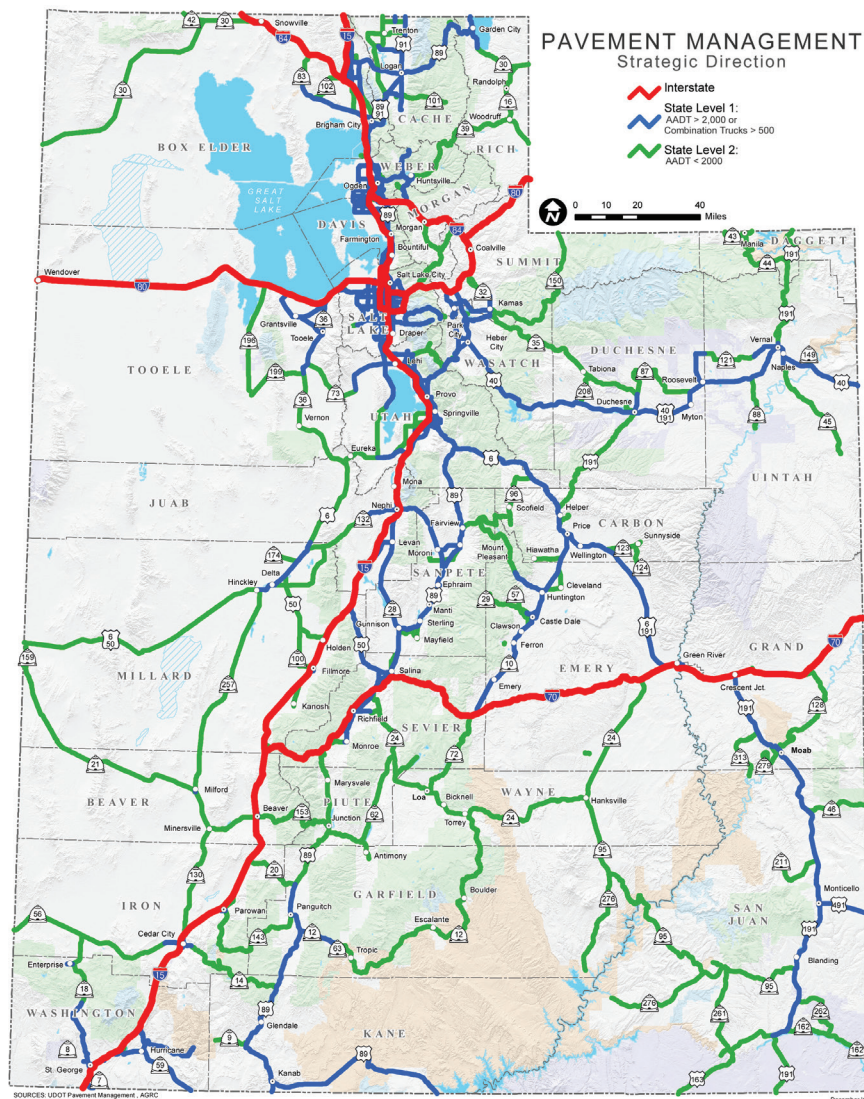


## PAVEMENT PRESERVATION

UDOT uses a long-term strategy to preserve and maintain the transportation infrastructure. By applying a combination of routine maintenance, preservation and minor and major rehabilitation projects, UDOT is able to utilize limited funding to maximize the pavement condition.

### Plan for Every Section of Every Road

Utah's highway system consists of 246 different roads. The roads are divided into 1,443 sections. These highway sections or segments represent how the individual roads were originally built and are now maintained as discrete units. The strategic management of the entire system is known within the Department as a "Plan for Every Section of Every Road." Each section has its own history, predicted forecast of needs and recommended specific maintenance treatments, preservation, rehabilitation or reconstruction.



## Maintenance Management Levels

At suitable funding levels the Department can apply the appropriate preservation treatment, at the proper interval, to the applicable section. Recognizing that the Department does not have enough funding to maintain all the above mentioned sections, UDOT made a strategic decision to establish different maintenance and funding levels for different sections of roads. The Department designates roads as either Level 1 or Level 2. Level 1 roads carry more than 2,000 vehicles or 500 trucks per day. Level 2 roads carry less than 2,000 vehicles per day. Funding is sufficient to maintain Level 1 roads but not Level 2 roads.

Interstates are maintained at the highest level with a minimum of 98 percent of all sections in good or fair condition. Level 1 surface streets are the next most important class of highways. These roads are major urban and rural highways, such as SR-191, Legacy Highway and SR-89. The Department's goal for Level 1 roads is to have a minimum of 90 percent of all sections in good or fair condition.

Currently, funding is not available to properly maintain Level 2 roads. The Department's goal is to have a minimum of 80 percent of all Level 2 sections in either good or fair condition.

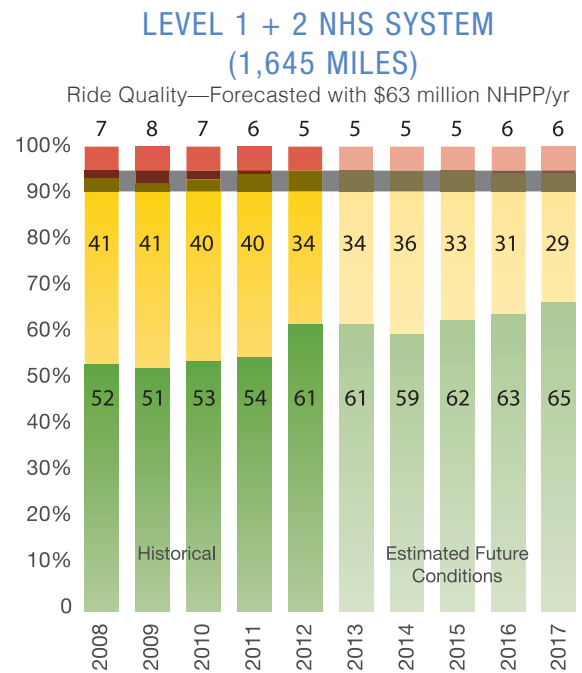
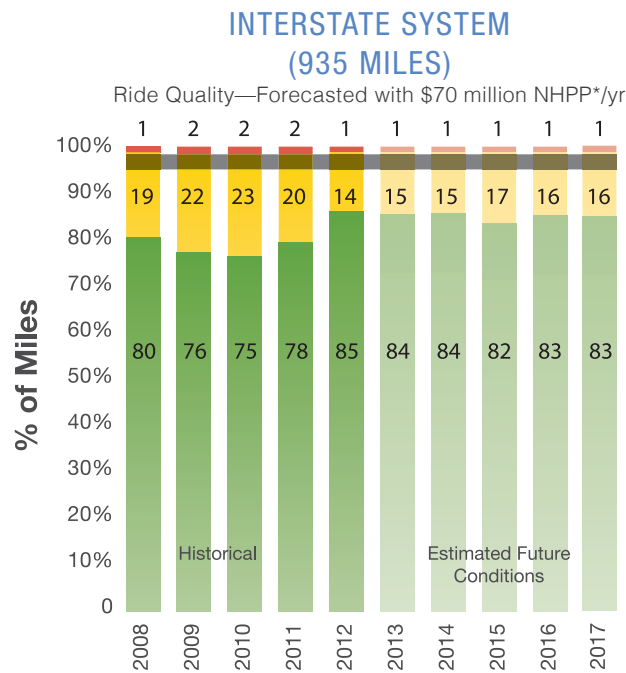
By monitoring and maintaining pavement conditions within the good and fair thresholds UDOT is able to effectively preserve the pavement life and minimize the cost for Level 1 roads. Approximately \$180 million in federal funds and \$25 million in state funding are allocated annually to maintain the overall pavement condition.



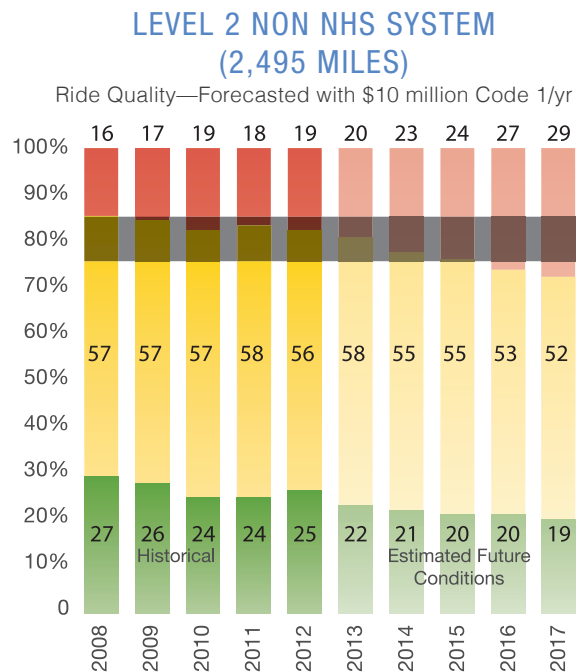
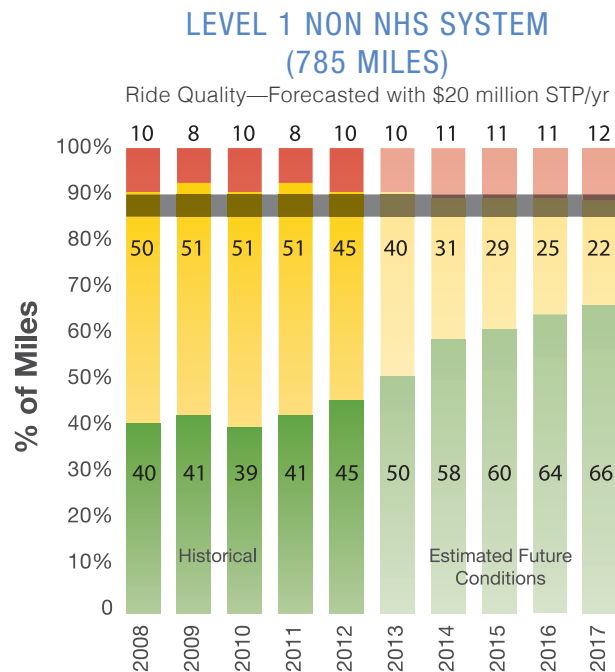
*Crews place a friction course on the roadway in Payson.*



Future conditions are based on current funding levels.



For the Interstates and Level 1 (National Highway System), the Department model continues to forecast an upward trend of the overall pavement condition based on current funding.



For Level 1 (non-National Highway System), the Department model continues to forecast a relatively stable condition while Level 2 continues a downward trend of the overall pavement condition based on current funding.

■ % Good: IRI < 95   
 ■ % Fair   
 ■ % Poor: IRI > 170  
 Thresholds vary in width for each maintenance management level

\*NHPP-National Highway Performance Program Funding  
 2005 to 2012 condition based on measured .1 mile data  
 2013 to 2018 condition based on modeled  
 "section level" index



### 2012 Accomplishments:

- More than 100 preservation and rehabilitation projects completed
- Approximately 350 miles, or six percent of the system, received a specific preservation or rehabilitation treatment
- Overall pavement conditions continue to be good and fair
- During the last year the overall condition of the state's biggest investment, Interstates, continue to improve
- The pavement condition for Level 1 roads continues to improve and Level 2 roads trended downward

### 2013 Goals:

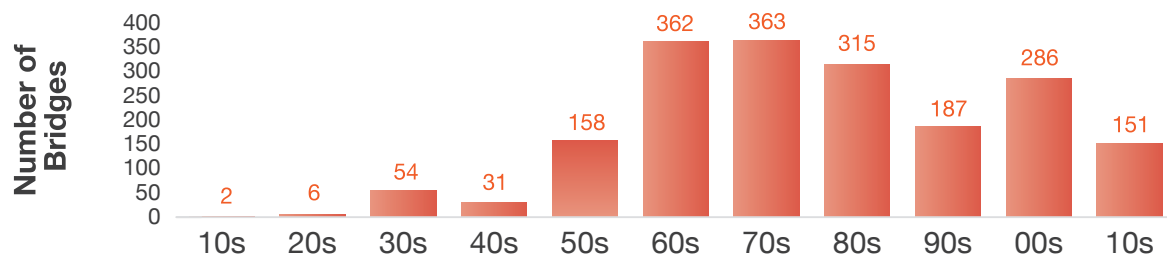
- Complete all preservation and rehabilitation projects on time and within budget
- Continue modeling to determine the proper funding mix between maintenance management levels; Interstate, Level 1 and Level 2
- Reverse or slow the pavement condition decline of Level 2 roads
- Continue to maintain the Interstates and Level 1 roads in good condition

## PRESERVING BRIDGES

UDOT strives to maintain a safe transportation system by managing the bridge infrastructure. Preservation activities such as protecting bridge decks, cleaning expansion joints and maintaining bearings, aid in extending the life of a bridge for nominal cost while the opposite can increase the rate of bridge deterioration, reduce the bridge life expectancy and require major bridge rehabilitation or replacement at a much higher cost.

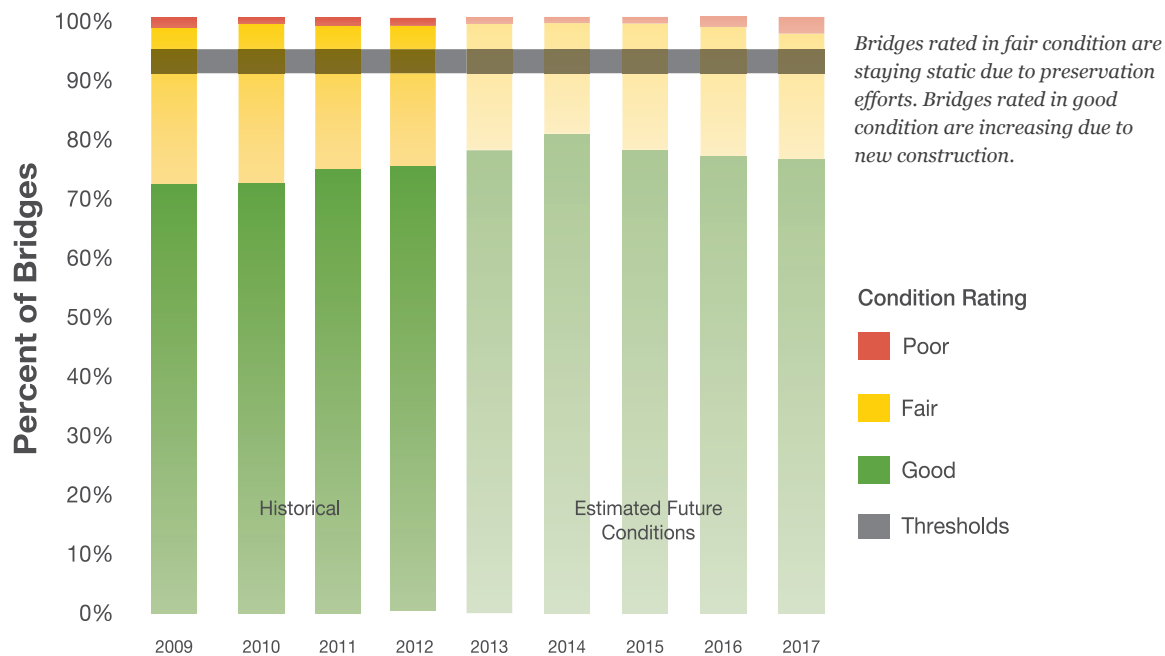
UDOT measures the health of the bridge system using condition ratings. UDOT's bridges continue to be safe with the overall rating of "good" and bridges rated "poor" continue to decrease. However, there are approximately 700 bridges that will need to be fixed or replaced in the coming years, to prevent long-term problems.

### AGE DISTRIBUTION OF UDOT BRIDGES



*UDOT is seeing a boom in the number of 30- to 50-year-old bridges coming due for replacement.*

## CONDITION OF UDOT BRIDGES



Because UDOT is experiencing a boom in the number of aging bridges, about 40 older bridges will need to be replaced each year over the next 30 years. UDOT is planning for the future and evaluating means and methods to extend the life of existing bridges while reducing future bridge costs by keeping them in good condition.

### 2012 Accomplishments Include:

- The Bridge Program replaced six critical bridges
- 84 new bridges were built by capacity-driven projects
- Two pedestrian bridges were built
- Bridge preservation and rehabilitation activities were performed on more than 170 bridges
- The bridge condition has remained constant with an overall good rating

### 2013 Goals:

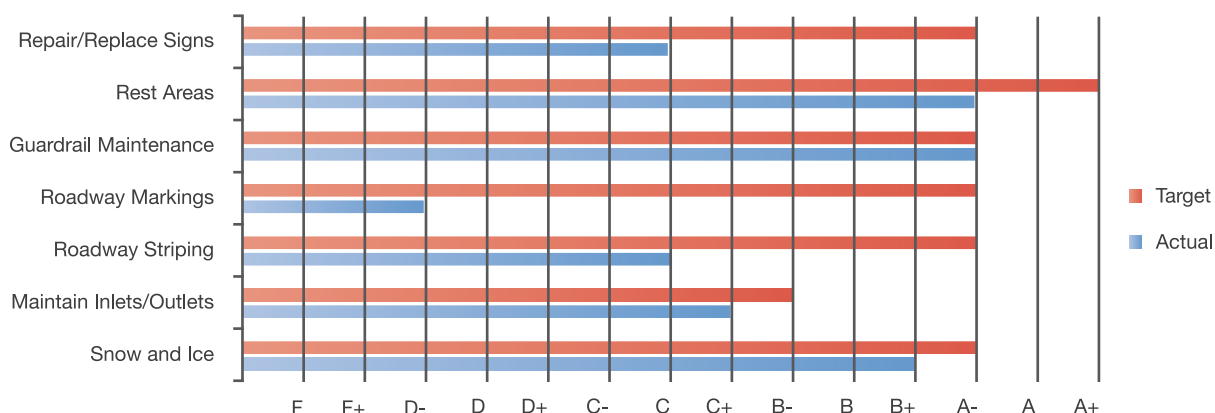
- Continue to maintain a bridge system rated in good condition
- Expand bridge management efforts and prepare a plan for every structure based on preservation, rehabilitation and replacement needs
- Develop a Bridge Asset Management System to project future bridge needs and funding to effectively manage the structure assets

## MAINTENANCE

### MMQA Program:

The Central Maintenance Division's Maintenance Management Quality Assurance (MMQA) program is used to identify performance of 19 specific state highway assets. These assets range from pavement striping, litter, drainage features as well as operational performance items such as snow and ice removal. These measures help the UDOT Maintenance Division identify its respective performance based on the current funding levels provided.

### MMQA SELECT KEY MEASUREMENTS

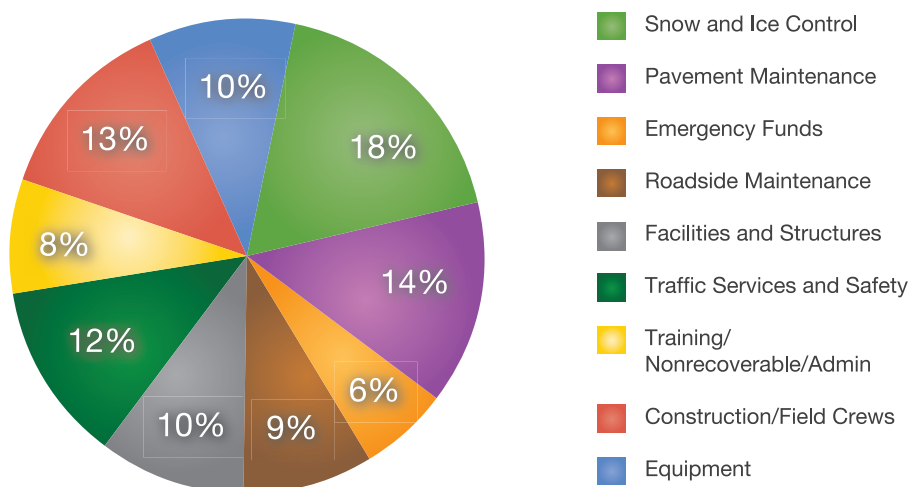


The graph represents the key measures for the 2012 fiscal year.

### Funding Distribution:

Each year the Central Maintenance Division distributes funding based on MMQA performance levels for performance measured assets and past history for non-measured assets. This distribution is broken into nine groups which helps identify specific areas of funding. The fiscal year (FY) 2013 budget distribution for the maintenance operations statewide was \$130,639,100.

### FY 2013 MAINTENANCE BUDGET DISTRIBUTION





## Strategic Goal

# OPTIMIZE MOBILITY

UDOT's past goals of "Make the System Work Better" and "Increase Capacity" have always been very connected and focused on providing mobility on the highway system. Without diminishing either goal, UDOT has combined them into one comprehensive goal, "Optimize Mobility."

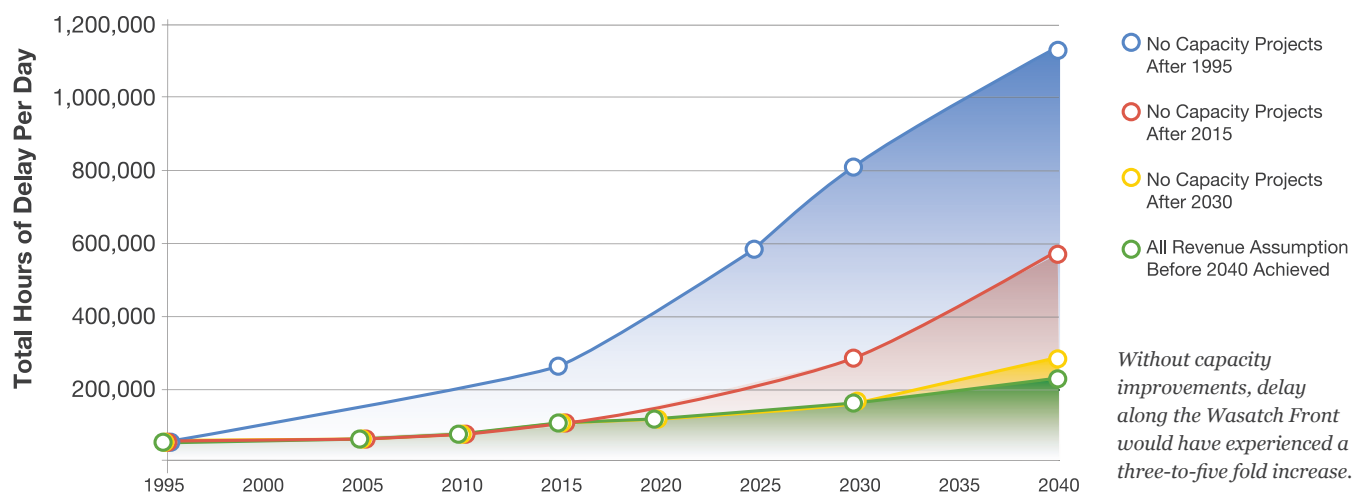
UDOT works to optimize traffic mobility through a number of measures which include:

- Adding capacity
- Innovative cross roads
- Providing traffic information
- Managed lanes
- Signal coordination

### Planning for the Future

Traffic delay diminishes the quality of life for all who live and drive in Utah. Thanks to state funding, UDOT is currently holding back delay. Data from the Wasatch Front Regional Council (WFRC) shows current and projected delay with and without capacity improvements starting in 1995. Between 1995 and 2010, delay is shown to be at a standstill even with a 50 percent increase in population and VMT.

### DELAY ALONG THE WASATCH FRONT - DAVIS, WEBER, SALT LAKE & UTAH COUNTIES



Even with planned capacity projects, delay will increase after 2012. However, the increase in delay would be two times greater by 2015 without capacity projects, according to WFRC's projections.

## ADDING CAPACITY: LANE MILES AND FUNDING SOURCES

Since 2006, more than 575 lane miles have been added to the state system from various programs that fund more than 100 projects.

**Transportation Investment Fund (TIF), 2005:** Currently, capacity projects are primarily funded through the TIF. Some of these projects include I-15 CORE, Mountain View Corridor, US-40 passing lane improvements in Duchesne and Uintah Counties, SR-18 intersection upgrades at St. George Blvd. and US-6 passing lane improvements in Carbon and Emery Counties.



*The I-15 CORE project was completed in November 2012, ahead of time and under budget.*

### **Critical Highway Needed Fund (CHNF), 2007:**

The CHNF program funded alternate routes for I-15 reconstruction, access, congestion and commercial energy development needs. Project examples include: Logan 1000 West/ SR-252 Reconstruction, Mountain View Corridor, 2100 North, I-15 Dixie Drive Interchange and Timpanogos Highway (SR-92).

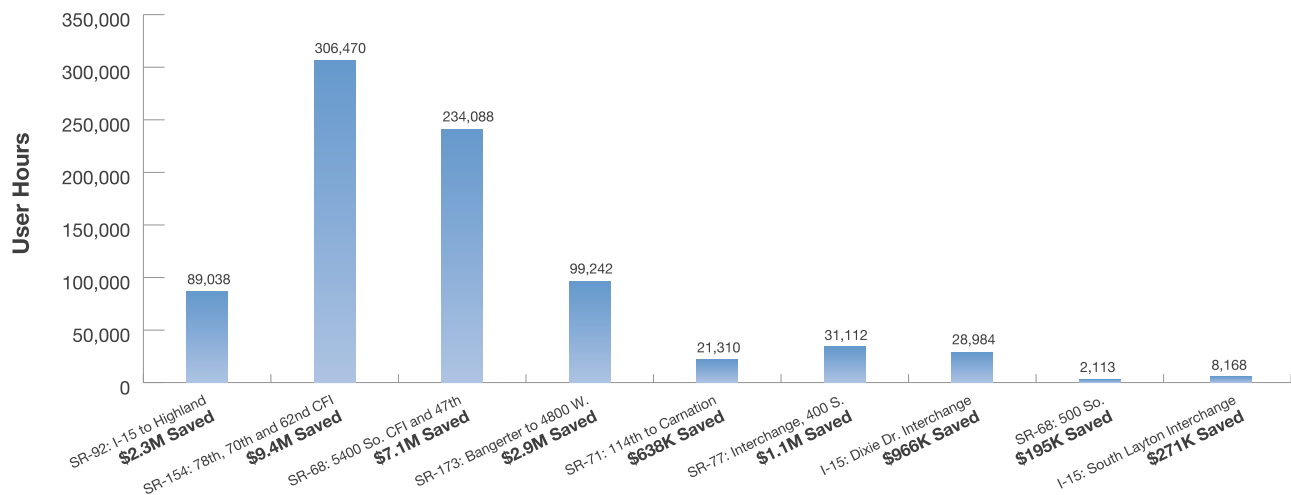


*The Dixie Drive Interchange in St. George not only improved travel from Dixie Drive to I-15, but it also improved regional access for residents and decreased travel time, saving approximately \$5 million a year.*

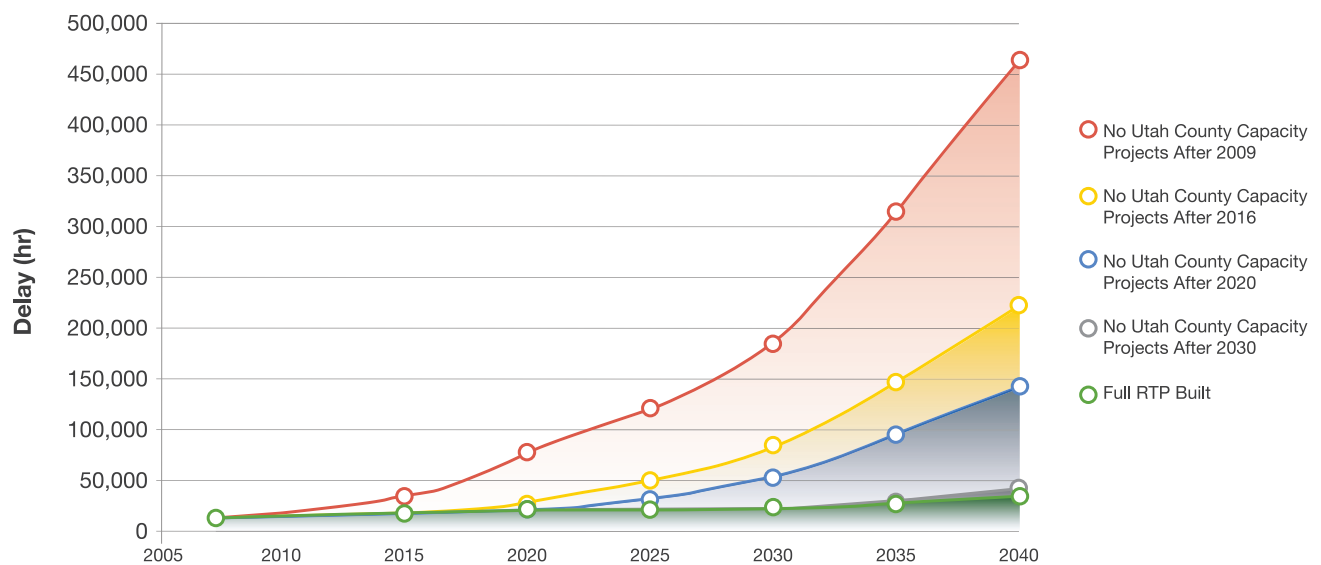
## UDOT's Projects Relieve Congestion

Before and after studies on nine capacity projects illustrate how UDOT eliminated hours of delay. User costs, a result of delay were also reduced.

### ANNUAL USER HOURS AND COST SAVINGS



### DELAY IN UTAH COUNTY



Without capacity improvements, delay in Utah County would be dramatically worse.

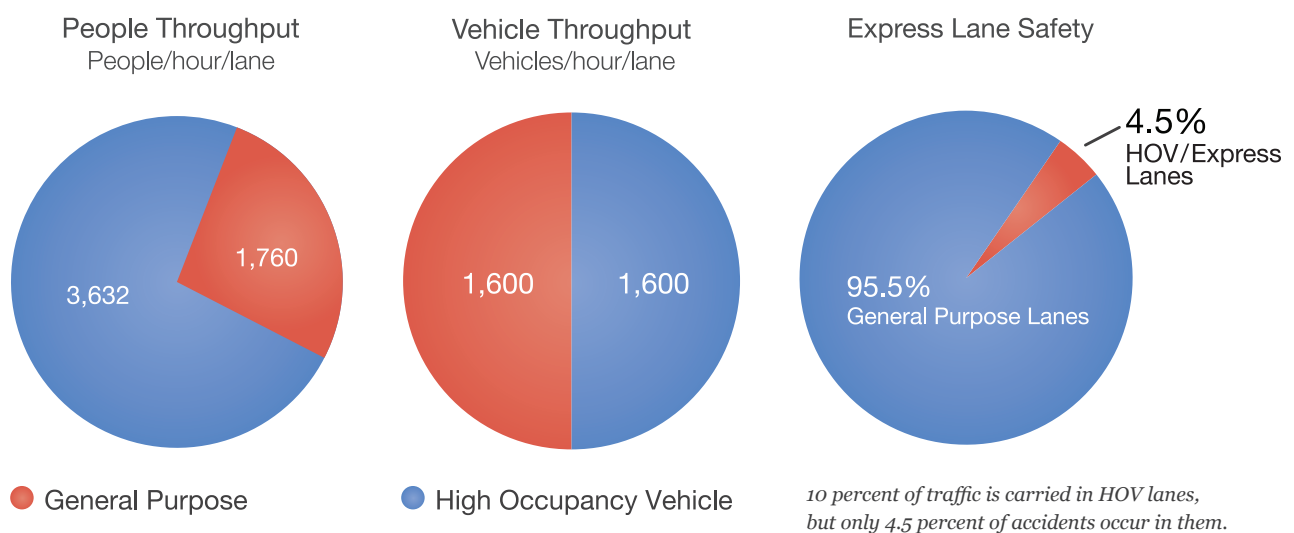
## MANAGED LANES

Innovative lane use helps move people more efficiently.



**Express Lanes:** UDOT currently has 124 miles of Express Lanes (62 miles both northbound and southbound) with 54 continuous miles between Spanish Fork and North Salt Lake City making Utah's Express Lanes the longest continuous Express Lanes in the country. A 10-mile gap between North Salt Lake and Kaysville is currently being studied. More than 13,000 Express Pass transponders have been purchased, speeds average **9 mph** faster than the general lanes and travelers experience a **higher level of safety**.

### EXPRESS LANES VS. GENERAL PURPOSE LANES USAGE





## INNOVATIVE CROSS ROADS

**Flex Lanes:** Flex Lanes on 5400 South in Taylorsville opened in the fall of 2012. The Flex Lanes accommodate heavy directional traffic by alternating the direction of the lanes during peak hours of the day, significantly decreasing traffic delay with minimal construction costs.

**Commuter Lanes:** Commuter Lanes along Timpanogos Highway (SR-92) provide a direct connection to and from I-15 and eliminate stopping at signals; reducing travel time and delays.

**ThrU-Turn Intersections (TTI):** UDOT has TTIs in operation on 12300 South in Draper and 5400 South in Kearns. By eliminating all left turns at the intersection, the number and severity of crashes are greatly reduced. Delay at the intersection also improved from two minutes per vehicle to 26 seconds per vehicle. Motorists travel through the intersection, make a signalized U-turn and come back to the intersection, where they turn right.

### Diverging Diamond Interchange (DDI):

DDIs, such as those in Lehi, American Fork and SR-201 at Bangerter Highway, improve safety and mobility while reducing the length and cost of construction.

### Continuous Flow Intersections (CFIs):

CFIs improve traffic congestion by allowing vehicles to move more efficiently through the intersection with less delay. UDOT currently has 10 CFIs in operation.

### Bike and Pedestrians

UDOT supports the increased use of non-motorized transportation in Utah. New bicycle infrastructure on UDOT projects has improved conditions for cyclists, statewide. In numerous areas throughout the state, UDOT has installed radar detection and a signal specific to cyclists turning left. This signal is activated by stopping in a designated area, which picks up the presence of cyclists, stops traffic with a red light, give cyclists the green light and provides enough time to cross the road.



*Flex Lanes*



*The innovative Commuter Lanes on SR-92 in Lehi provide a signal-free connection to and from I-15 that saves drivers time and hassle by avoiding most of the signals on the main roadway.*



*ThrU-Turns (TTI) improve mobility by reducing delay caused by left turns.*



## SIGNAL COORDINATION

### The Traffic Operation Center (TOC):

#### Operating Utah's Roadways

The Traffic Operations Center is the nerve center of UDOT. Using advanced technologies such as cameras and traffic/weather sensors, operators in the TOC can monitor traffic, detect problems and take actions necessary to return traffic flow to normal. The TOC continues to be the key to providing a cost-effective and an efficient solution to help relieve congestion on Utah's roads and highways.

UDOT is committed to making our signal operations world class. We are responsible for traffic signal timing on all state roads, which we control centrally at the TOC. In 2012, 20 signal coordination projects took place where five corridors were analyzed in detail.

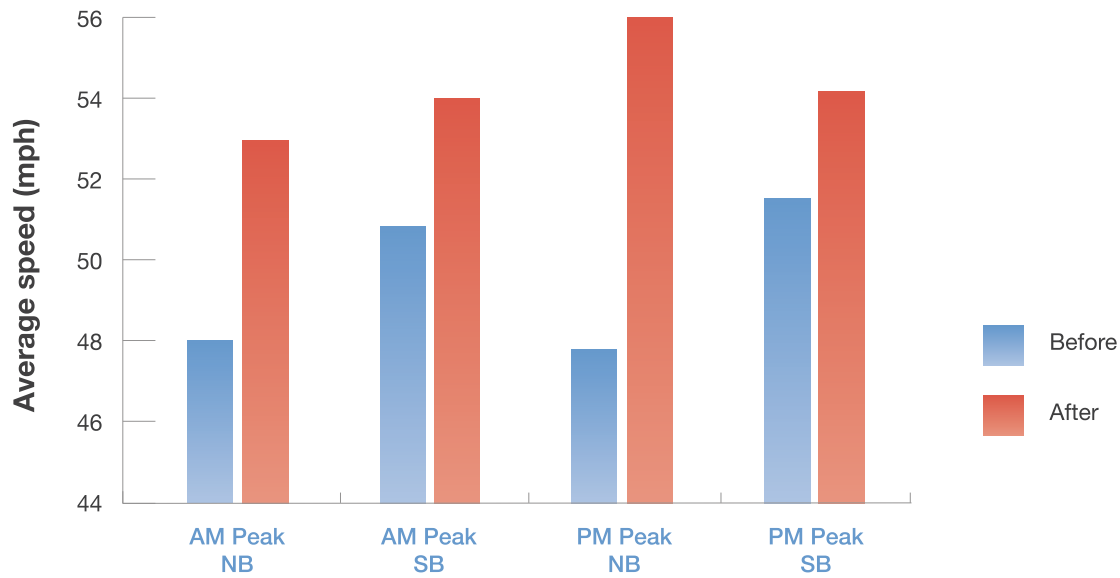
#### The five corridors were:

- US-89 to/from Nicholls Rd. (Fruit Heights) to Sunset Blvd (Layton)
- Redwood Rd. to/from I-215 to 1100 North
- SR-108 (Midland) to/from 4800 South to 1800 North
- 11400 South to/from State St. to 4000 West
- SR-201 from 7200 West to 8400 West and 8400 West from SR-201 to 3100 South

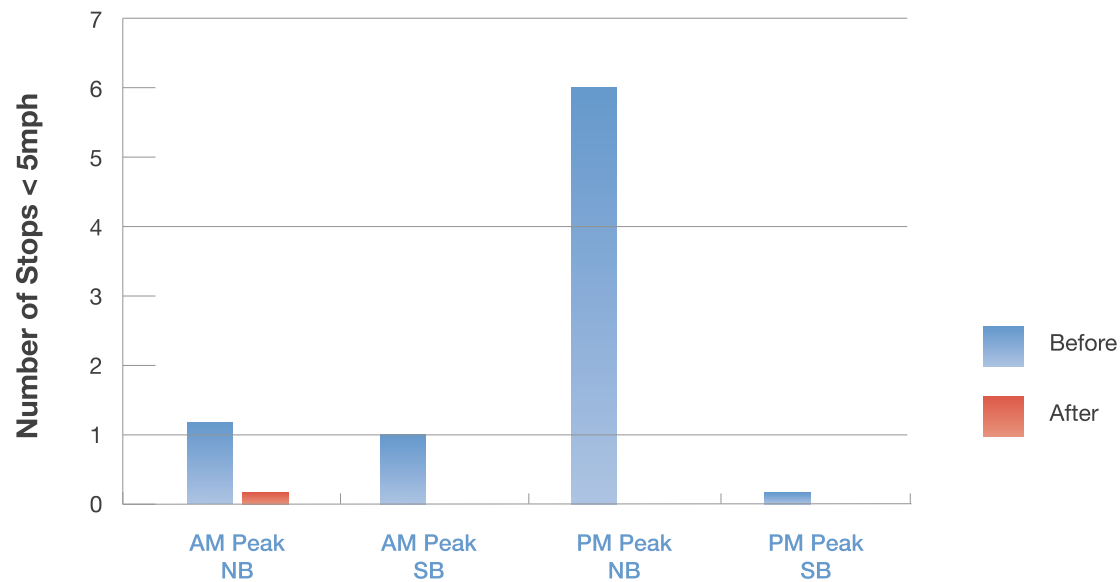


The new traffic signal timing resulted in dramatic improvements in travel time and hours saved. All together, travel times at these intersections improved by eight percent with a total of 118,000 hours saved and a total user cost savings of \$2.75 million.

### US-89 (NICHOLLS RD. TO SUNSET RD.) AVERAGE SPEED



### US-89 (NICHOLLS RD. TO SUNSET RD.) NUMBER OF STOPS



Five signals along US-89 from Nicholls Rd. in Fruit Heights to Sunset Rd. in Layton were timed in the fall of 2011. The goal of the new signal timing was to reduce the number of stops and improve travel time along the high-speed corridor during commute times. Afterward, the signal timing stops along the corridor were reduced by 80 percent and overall travel speeds increased by nine percent.



## PROVIDING TRAFFIC INFORMATION

UDOT uses a variety of methods to provide actual travel times and accurate traffic and weather information to help drivers make choices that reduce delay, prevent crashes and improve air quality. By implementing an extensive Intelligent Transportation System (ITS), UDOT is able to know what is happening on Utah roads, and provide travelers the information they need to plan their routes. UDOT communicates travel information online at [udot.utah.gov](http://udot.utah.gov) and through:

**Variable Message Signs (VMS):** UDOT has 162 VMS located on I-15 and on major routes, telling travelers of expected travel times, upcoming construction, lane closures, crashes blocking their route or information ahead of a large weather event.

**UDOT Traffic Cameras:** Located throughout the state, UDOT traffic cameras provide real-time traffic views of current road conditions. These cameras help operators at the TOC know what's happening on the roads, are used by news stations to report traffic conditions and are readily available to the public at [udot.utah.gov](http://udot.utah.gov).

UDOT has more than 950 cameras in operation throughout the state.

**Social Media:** UDOT uses Twitter, Facebook and YouTube to post information and updates on traffic conditions, changes in traffic flow, construction activities and weather conditions, as well as educational materials such as animations and tutorials.

**UDOT Traffic App:** This app provides mobile access to information about traffic conditions, accidents, road construction activities, seasonal road closures, traffic cameras and VMS messages.

## Reducing Travel Demand with TravelWise

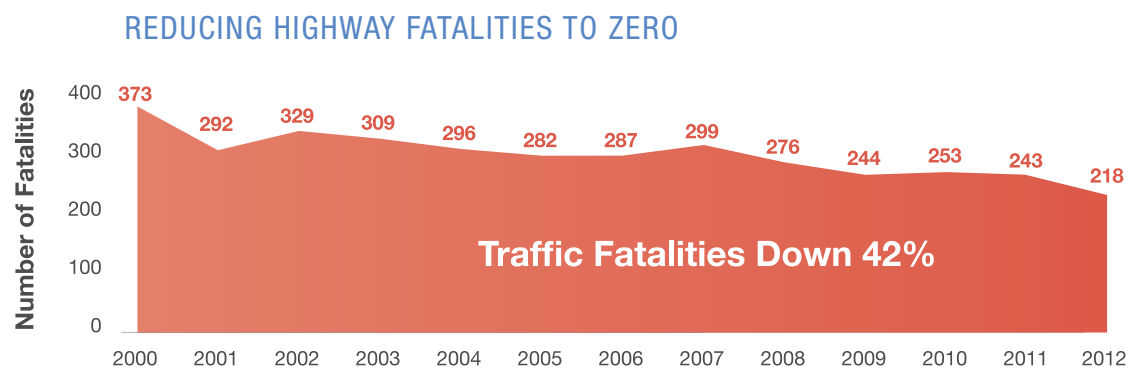
To help make our transportation system work better, UDOT developed TravelWise. The TravelWise program encourages alternatives to driving alone to help travelers conserve energy, reduce traffic congestion and improve air quality. TravelWise strategies include ridesharing, carsharing, carpooling, vanpooling, active transportation (biking, walking), teleworking, e-traveling, using transit, flexible work hours and compressed work weeks.



## Strategic Goal ZERO FATALITIES

UDOT remains committed to safety. This new goal replaces the previous goal of “Improving Safety” emphasizing UDOT’s commitment to reducing fatalities. Zero fatalities is the only goal.

Every UDOT project incorporates safety improvements. In 2012, UDOT programmed \$19.2 million for specific safety projects.



### 2012 Accomplishments:

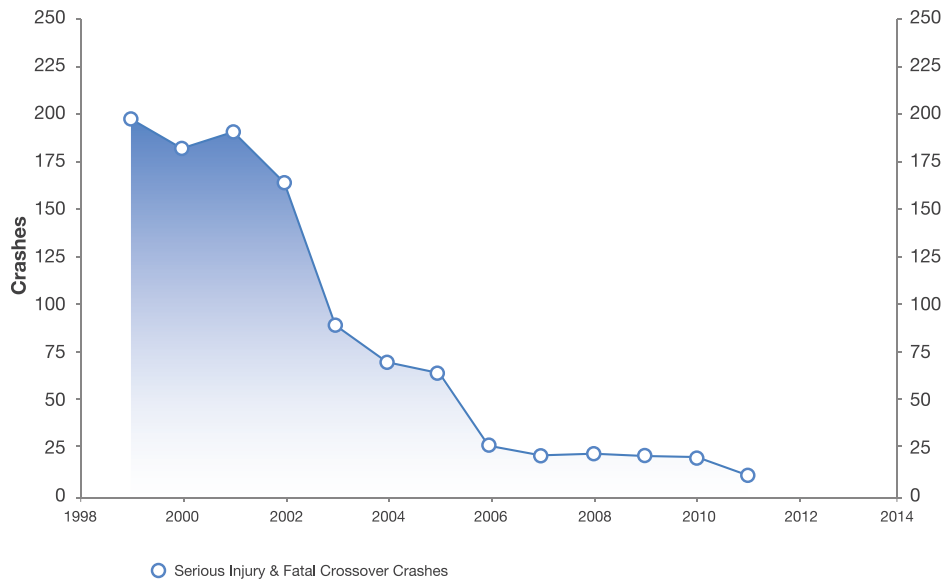
- 42 miles of median cable barrier installed, for a total of 231 miles since 2003
- Approximately \$17 million of Safety Program funds were assigned to specific safety projects in 2012
- 12 new traffic signals constructed
- 24 traffic signal upgrades constructed
- 11 pedestrian/school crossing improvements
- Construction of 20 safe sidewalk projects
- Installation of 540 sidewalk access ramps

### 2013 Goal:

- Zero Fatalities

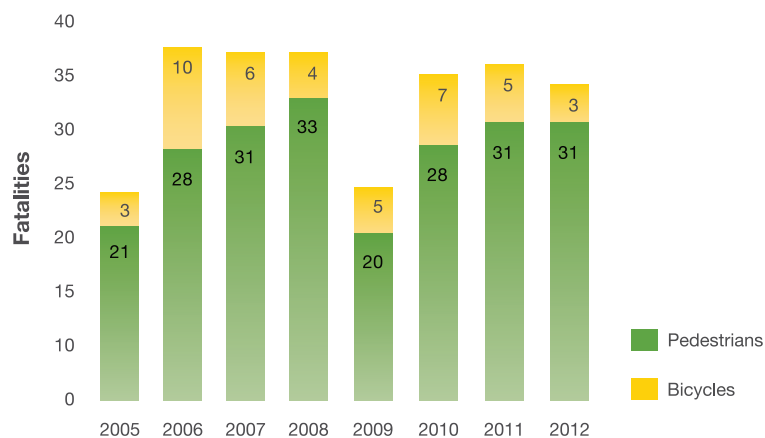


## INTERSTATE SERIOUS INJURY AND FATAL CRASHES INVOLVING A VEHICLE THAT CROSSED THE MEDIAN



Since 1999, the number of serious injuries and fatal crashes on Utah roads, caused by vehicles crossing the median, has decreased by more than 180 incidents per year. The installation of safety features such as cable barriers, solid barriers and rumble strips are helping to reduce this number.

## PEDESTRIANS AND BICYCLE FATALITIES SUMMARY



*UDOT supports the increased use of non-motorized transportation in Utah. This includes developing facilities for the use of pedestrians and bicyclists and providing public educational, promotional and safety programs.*

## ENGINEERING

In UDOT, the focus on safety within engineering begins with planning, designing and building safe roadways. Engineering for safety is UDOT's commitment to a safe-system approach. The main principle of a safe-system approach is the roadway is designed and built to realistically prevent traffic related deaths even when driving behaviors create crashes. UDOT engineers use design principles that have been proven to be safe and reliable. Design and construction standards are used for the roadway geometry, signs, traffic markings and safety devices to provide consistency for the traveling public. However, UDOT engineers continue to search for new and innovative ways to make transportation safer.

**Key UDOT Traffic Safety Programs include:**

- Highway Safety Improvement Program (HSIP)  
This federally funded program of safety improvement projects, activities and plans are carried out as part of the Utah Strategic Highway Safety Plan and is focused on improving highway safety on all public roads.
- Spot Safety Improvement Program (SSIP)  
This state funded program of infrastructure safety projects is focused on addressing highway safety issues in a small localized area on state roadways.
- Signal Program  
This state funded program provides for the design and construction of traffic signals where traffic engineering studies of existing conditions have warranted the use of signal devices for safe and efficient movement of traffic through an intersection.
- Railroad Safety Program  
This federally funded program is focused on reducing crashes associated with the crossings of railroad facilities and roadways by providing or enhancing the traffic control devices or improving the interaction of vehicles and trains at these crossings.



*This High Intensity Activated Crosswalk (HAWK) was installed on Highway 89 in North Salt Lake to help pedestrians safely cross the roadway.*

## EDUCATION

Utah demonstrates its commitment to safety through outreach efforts that help educate the public and make Utah a safe place for living, traveling and doing business. Much of UDOT's focus is on educating teens and children. Since 2009, UDOT safety programs have:

- Totalled more than 135 presentations to elementary schools
- Reached more than 100,000 students statewide

### **Zero Fatalities ([ut.zerofatalities.com](http://ut.zerofatalities.com)):**

- As a member of the Utah Safety Leadership Committee, UDOT is taking a comprehensive, coordinated approach to improving traffic safety.
- With the combined efforts of several traffic safety partners, last year Utah saw the lowest number of traffic fatalities since 1959.
- Independent surveys show that more than 73 percent of adults in Utah are aware of the Zero Fatalities program. More than half (56 percent) of those who are aware of Zero Fatalities say the program has influenced them to avoid the top behaviors killing people on the roads.
- Lack of seat belt use is a contributing factor in more than one-third of Utah's fatalities. In order to reduce the number of seat belt-related fatalities, Zero Fatalities encourages seat belt use.
- UDOT has partnered with KSL for one year to bring stories about how Utahns can stay safe on Utah's roads in an initiative named: KSL's Road to Zero Fatalities.



*Students participate in a "Think Safety" assembly, a part of the Zero Fatalities program.*

### **Don't Drive Stupid ([dontdrivestupid.com](http://dontdrivestupid.com)):**

- Don't Drive Stupid is Utah's teen driving safety program and has created partnerships throughout the state with more than a dozen organizations.
- Nearly 20,000 people were reached through Don't Drive Stupid presentations and outreach programs last year.
- Don't Drive Stupid representatives are helping parents prepare their teens for driving. Driver education instructors ask Don't Drive Stupid representatives to speak to parents and teens about the top behaviors killing people on Utah's roads, the graduated driver license laws and other safe driving messages.

### **Student Neighborhood Access Program (SNAP):**

- A fun and comprehensive program for walking and biking safely to school that engages and educates students, parents, school administrators, crossing guards and communities.
- As part of the federal Safe Routes to Schools program administered by UDOT, SNAP's first priority is student safety, with the goal to help make the roads around schools safer.





*Incident Management helps improve safety on Utah's roadways by responding to incidents including stranded vehicles, flat tires and reducing secondary crashes.*

## EMERGENCY SERVICES

### Incident Management Program:

UDOT's Incident Management Program began in 1994 as part of UDOT's on-going commitment to safety on Utah's roads. From the beginning, the program has provided significant benefit by increasing first responder safety, reducing congestion and delays and reducing secondary crashes.

Disabled vehicles create a safety hazard, especially when the disabled vehicle is blocking a travel lane. Statistics show that for every five minutes that a travel lane is blocked on the freeway, congestion develops behind the crash that will take 25 minutes to clear. Also, every minute a lane is blocked the likelihood of secondary crashes resulting from congestion increases by three percent. Approximately 20 percent of freeway crashes trace back to an original incident.

With these kinds of statistics, the Incident Management program is intended to improve freeway safety and reduce congestion by keeping the lanes of travel clear. A stationary vehicle on the freeway, whether abandoned, crashed or otherwise disabled, creates the potential for a collision and, as such, poses an immediate threat to public safety.



## CONTROLLING SNOW AND ICE

To clear snow from approximately 6,000 centerline miles of Utah's roads, UDOT employs the latest technologies and trains crews to ensure they are ready.

- On average, Utah receives more than 25 winter storms each year and UDOT crews remove more than 65 million tons of snow and ice from Utah's roads.
- To help keep our roads clear around the clock, UDOT operates a fleet of approximately 500 snowplows.
- UDOT's winter operations budget for the 2012-2013 winter season is \$23.3 million, including equipment, salaries, sand, salt, brine and avalanche control.



*Snow crews clear the road in Little Cottonwood Canyon*

UDOT continues to make the snow and ice removal process more efficient by:

- Using equipment such as wing plows and tow plows that allow greater control and efficiency
- Applying brine before storms and using salt more efficiently
- Using technology such as Road Weather Information Systems (RWIS) and weather forecasting information to assess conditions and dispatch plows advantageously
- Evaluating road conditions within one hour of every storm event
- Saving more than 20,000 gallons of diesel fuel per year by training drivers using a snowplow simulator



*UDOT crews clear snow on SR-150, Mirror Lake Highway in May 2012.*



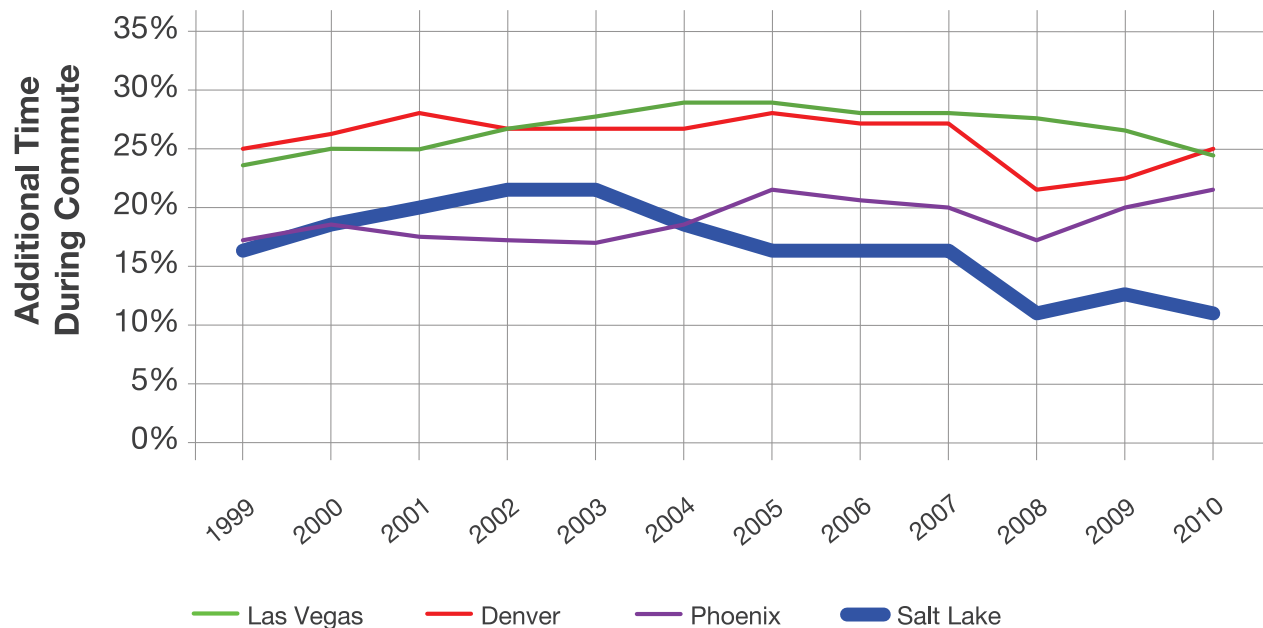
*UDOT uses the latest technologies to help remove snow from the freeways efficiently.*

## Strategic Goal

# STRENGTHEN THE ECONOMY

This goal recognizes UDOT's role in creating and managing a transportation system that enables economic growth and empowers prosperity. Investing in major roadway projects in the past few years has paid great dividends. While many cities in the United States show increasing travel times, Utah travel times are decreasing. This is very significant considering the population of Utah has grown 63 percent since 1990.

### MOUNTAIN WEST TRAVEL TIME



*While many of the cities in the Mountain West are becoming more congested, Salt Lake City is seeing lower travel times because of the many transportation projects built in the past few years.*

UDOT is providing a product for future generations. When Utah's roadways are safe, free of congestion and operate efficiently, Utahns are free to live where they like with a wider selection of jobs. Businesses are also able to reach a wider range of customers and employee base.

Success in the first three goals creates a solid foundation for economic growth:

- Preserve Infrastructure
- Optimize Mobility
- Zero Fatalities
- **Strengthen the Economy**

### **PRESERVING INFRASTRUCTURE CAN BENEFIT THE ECONOMY IN A NUMBER OF WAYS**

- **Costs Less:** Well preserved assets optimize limited public dollars. They also have a lower life cycle cost and decrease the financial liability on the state.
- **More Efficient:** A well maintained road is comfortable for motorists and provides easy access to businesses and employment. Deteriorated roads are difficult on vehicles and may cause motorists to seek other routes, thus causing congestion on a few major roadways that are in better condition.
- **Less Delay:** Major road repairs cause traffic and delays while periodic maintenance is less invasive and causes minimal traffic for motorists.



*Crews place a chip seal in the roadway. Preservation projects like these extend the life of the road and reduce the need for expensive reconstruction.*



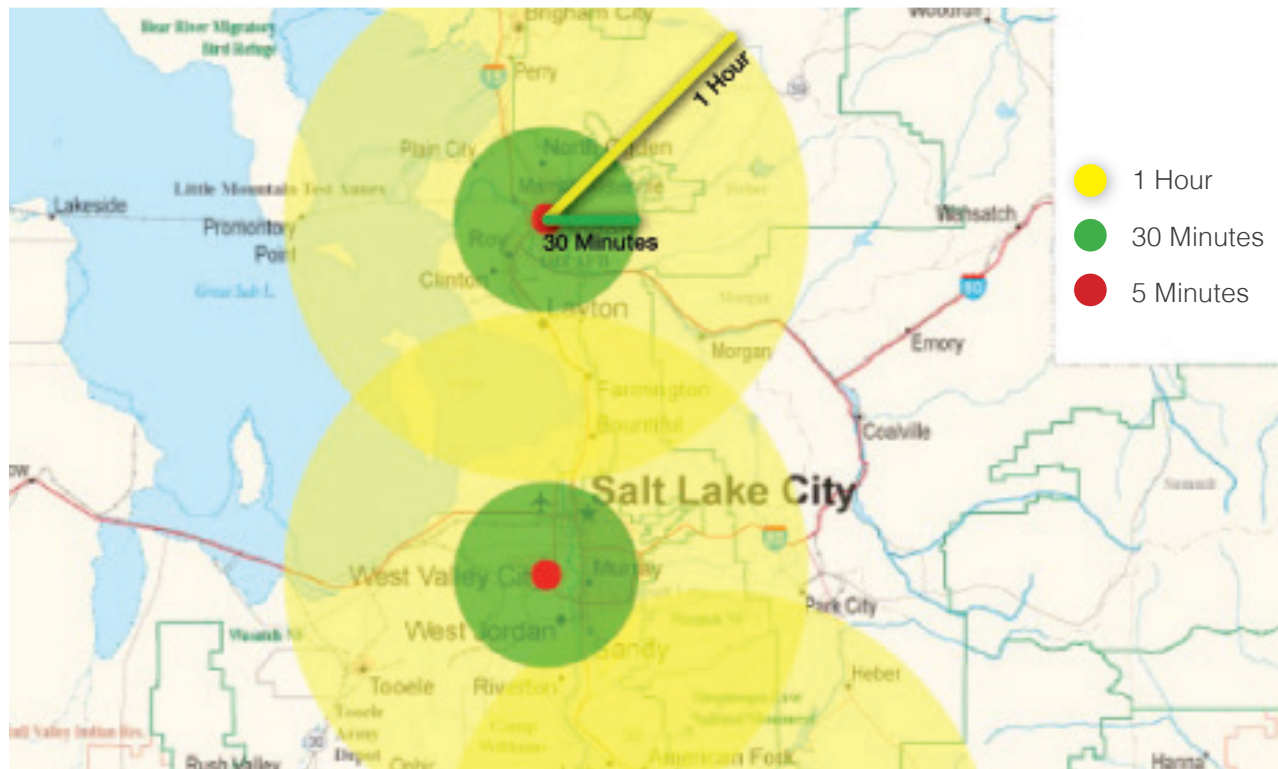
## HOW OPTIMIZING MOBILITY STRENGTHENS THE ECONOMY

Mobility is good for Business

UDOT understands the importance of mobility and its significance for economic growth. Businesses also understand the importance of locating in areas where their product can be distributed quickly and efficiently, and where their employees can benefit from a healthy quality of life.

***“Infrastructure is incredibly important to most companies when considering where to develop and expand. Manufacturers and distribution businesses need to be close to main thoroughfares to easily transport their products in and out of the region quickly.”*** – Lane Beattie, president and CEO, Salt Lake Chamber.

### MOUNTAIN WEST TRAVEL TIME



*With less congestion residents are able to travel farther in less time, thus allowing them to work and shop further from home.*



## Bangerter/Mountain View Corridor

Over the past decade, the western edge of the Salt Lake Valley from West Salt Lake City to Herriman has seen tremendous growth. Not only have numerous residents found favor with the cities in this area but major employers have chosen this area to locate regional offices and distribution centers.

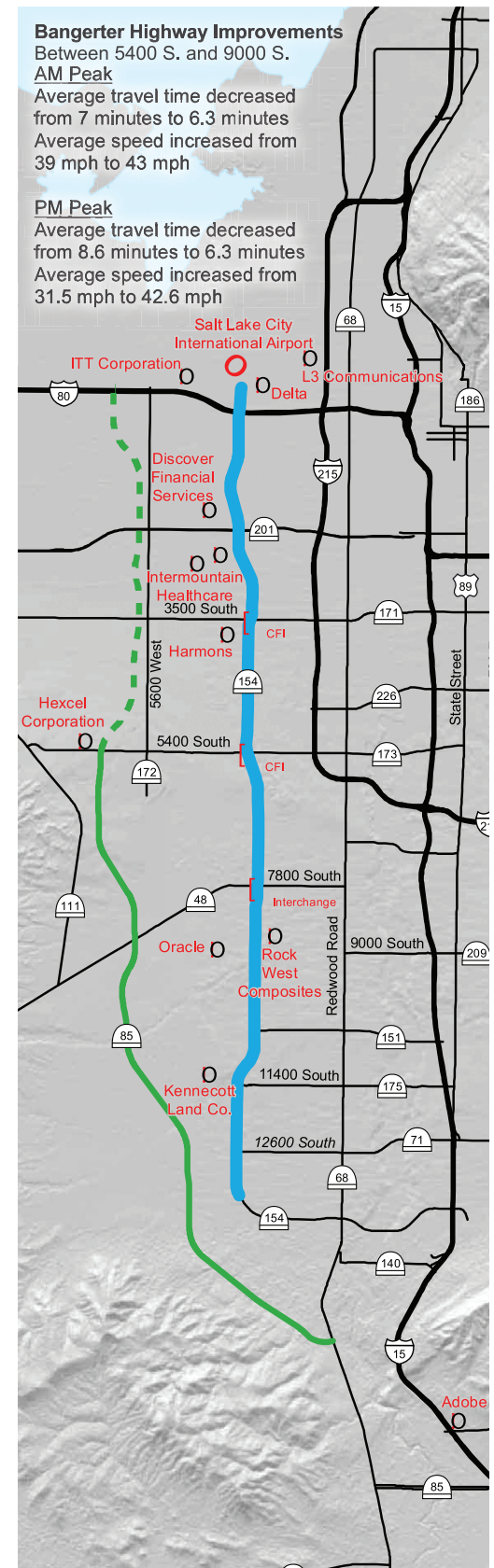
In the past few years major improvements have been made to Bangerter Highway between Salt Lake International Airport and 13400 South. Results of these improvements include: an upgraded Bangerter Highway that incorporates the latest innovations in transportation mobility. These changes to Bangerter will improve the flow of traffic in all directions, save commuting time for drivers and alleviate much of the current traffic congestion; all in an effort to help commuters get where they're going.

## HOW ZERO FATALITIES STRENGTHENS THE ECONOMY

Everyone benefits from a safe transportation system, including the economy.

- When a roadway is known to be safe, residents and visitors will be more likely to use it. Safe roads can promote the growth of business along that roadway and the local economy.
- Residents and visitors traveling on Utah roads expect to get to their destinations without harm or accident.
- Utah has one of the lowest fatalities due to motor vehicle accidents, with only .80 fatalities per 100 million vehicle miles traveled. This low fatality rate may be a factor in Utah's low automobile insurance rates, ranging from 16 percent to 18 percent less than the national average.

For the third year in a row, *Forbes* magazine has named Utah as the best state in the U.S. for doing business. According to economist, transportation plays a big role in the state's business environment. At the end of 2011 only six states – North Dakota, Wyoming, Alaska, Utah, Texas and Montana—showed more than eight percent job growth over the past decade. UDOT has worked with many companies throughout Utah to determine what their transportation needs are and how UDOT can assist in those needs. Certainly, businesses in Utah are benefitting from the improved mobility on roadways.



# DELIVERING RESULTS

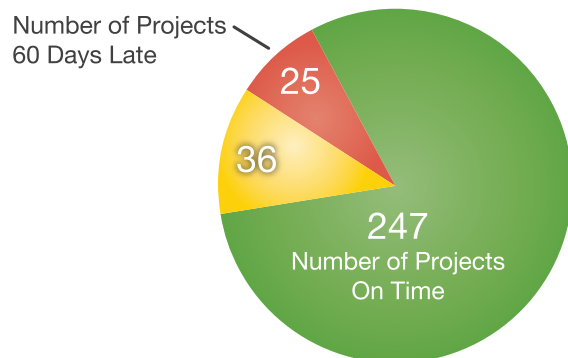
The Department's capital program is divided into two main parts: Preconstruction and Construction

## PRECONSTRUCTION

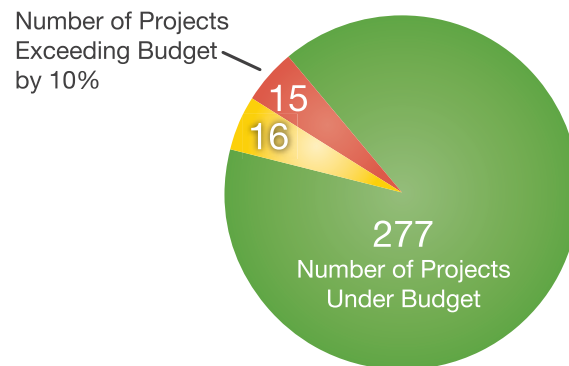
In 2012 the Department contracted for 283 preconstruction and environmental projects worth a total of more than \$44 million.

### Current Projects

PRECONSTRUCTION SCHEDULE



PRECONSTRUCTION BUDGET

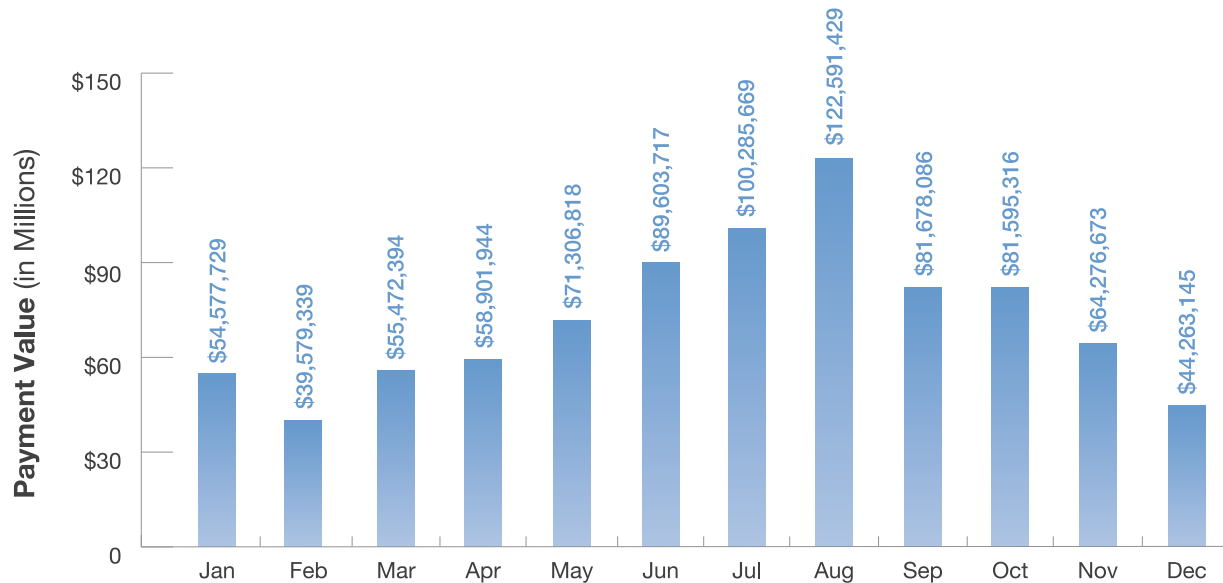


*The goal for the preconstruction division is to have 85 percent of projects on schedule and 90 percent of projects on budget. Presently 80 percent of projects are on schedule and 90 percent of projects are under budget.*

Once the necessary requirements and agreements are complete, construction can proceed. UDOT contracts with independent contractors for each project.

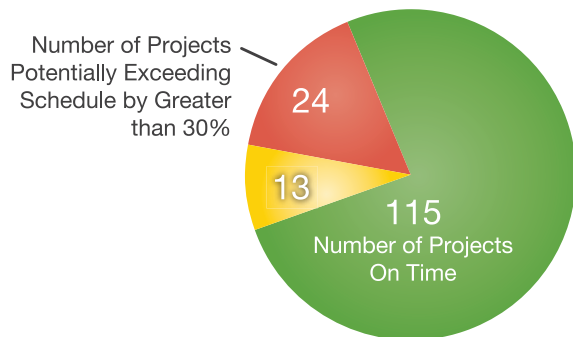
## CONSTRUCTION

### 2012 MONTHLY CONSTRUCTION PAYMENTS

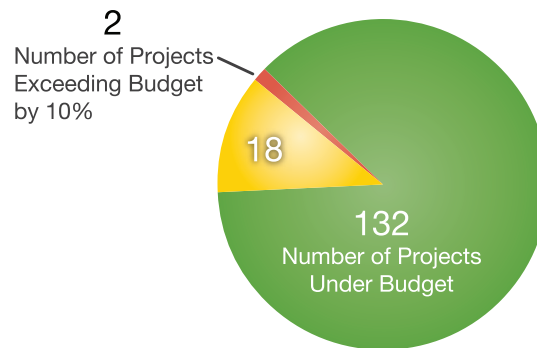


Contractor payments are paid directly to the contractor and only cover construction projects. Projects in the design phase, as well as transportation studies, are not represented in this chart.

### CONSTRUCTION SCHEDULE



### CONSTRUCTION BUDGET



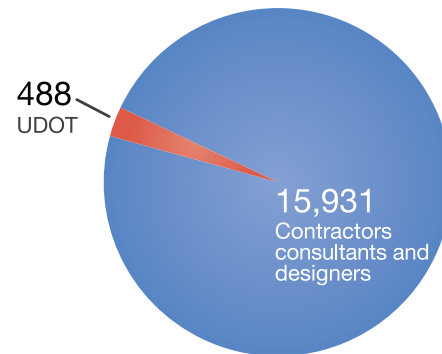
The goal for the construction division is to have 75 percent of projects on schedule and 90 percent of projects on budget. Presently 76 percent of projects are on schedule and 87 percent of projects are under budget.

UDOT also leverages the private sector. Less than three percent of those working on UDOT construction projects are employed by UDOT, with almost 16,000 contractors working on UDOT projects.

### Benefits Of Alternative Contracting

UDOT prides itself on pioneering innovative and alternative contracting. The purpose of alternative contracting is to enhance the construction process by improving and speeding project delivery, without compromising safety or quality, while also meeting the goals and objectives of the department.

### EMPLOYEES ASSOCIATED WITH CONSTRUCTION PROJECTS



### Examples include:

- Construction Management, General Contractor (CMGC):** The CMGC process fosters a collaborative environment where contractors, designers and UDOT work together to design the project, after which the contractors and designers construct the project.  
  
 Mountain View Corridor has documented the following savings: \$25 million with its innovative tracking process; \$12 million in the reduction of anticipated utility relocations with Rocky Mountain Power and Kern River Gas; and \$6 million in a schedule reduction of one year. On a smaller scale, the SR-14 project saved \$17.31 million in construction costs and just over \$1 million in design changes brought about by the CMGC process.
- Design-Build:** Design-Build is a method to deliver a project in which the design and construction services are contracted by a single entity. This method is used to minimize risks for UDOT and to reduce the delivery schedule by overlapping the design phase and construction phase of a project. The Design-Build method resulted in the completion of I-15 CORE two years ahead of the Department's anticipated completion date and less than two percent of the contract value in change orders versus the industry average of five-to-six percent for similarly sized projects. This reduction in change orders saved UDOT \$45 million to \$50 million. Ultimately, the Design-Build method saved UDOT \$260 million
- Price + Time Bidding (P+T):** Every project bid at UDOT uses P+T. With this method, contractors bid a price and the number of days it will take them to construct each project. Price and time values are added together to determine the low bid. The contractor with the most aggressive schedule is often awarded the contract. When construction time is minimized using the P+T method, the impacts to business and drivers are reduced.

## MAINTENANCE

### 2012 Accomplishments:

- 2,933 lane miles of chip seals, pothole patching and crack sealing
- 219,063 gallons of lane striping, parking lot, traffic island and guideline paint
- 35,331 miles of litter control
- 33 miles of fence maintenance and repair
- 16,084 feet of guardrail maintenance
- 22,195 feet of cable barriers



